USGS
science for a changing world

USGS: Organizing, Preserving, and Communicating Knowledge of the Botanical World

Current and future generations will be affected by the way we manage our botanical treasures. That is why wise stewardship must be rooted in decisions based on the best information available.

Leafy spurge in the Little Missouri River flood plain (near Medora in western North Dakota) is shown here in 1998 in two seasons, summer (above) in full bloom and dormant in the fall (at left). Photos courtesy of the National Park Service-Theodore Roosevelt National Park.

For decades, America has invested in increasing our knowledge of this nation's plants. The U.S. Geological Survey (USGS) is committed to growing that knowledge through a variety of specialized programs.

Modern information tools and techniques applied to these programs can leverage federal dollars devoted to improving our understanding of the botanical world. Two USGS budget initiatives are aimed at planting new seeds of success and streamlining information access, storage, and retrieval — the National Spatial Data Infrastructure (NSDI)-Community/ Federal Information Partnerships (CFIP) ($3 million for biological information) and the National Biological Information Infrastructure (NBII) ($1 million). Here are just a few programs these initiatives will affect.

ITIS

The NBII, whose national program office resides at USGS co-leads the Hammer award-winning Integrated Taxonomic Information System (ITIS). ITIS is the first comprehensive, standardized reference on the Web for the scientific names of the plants and animals of North America and surrounding oceans. Taxonomy -- the science of describing, naming, and classifying plants and animals -- provides the foundation for understanding and integrating the similarities and differences among the world's organisms, both living and extinct.

PLANTS

U.S. Department of Agriculture (USDA) scientists associated with the National Plant Data Center maintain the PLANTS database, a renowned source of plant information. The NBII works cooperatively with the USDA in PLANTS development. The PLANTS database is accessible through the NBII and focuses primarily on plants of the United States and its territories.

Helping Curb Invasive Species

Invasive species are dramatically altering natural areas in the United States and around the world. These species have expanded beyond their native ranges, typically through introductions from other countries, in association with various human activities. Three NBII efforts are helping to combat this problem:

- In partnership with the USDA Natural Resources Conservation Service, the NBII is creating an invasive species Web site to help communicate with the public about the monumental threat to our natural and farmland heritage posed by invasive weedy species as well as other invasives.
- USGS biologists are working with USDA Agricultural Research Service scientists on problem leafy spurge populations within Theodore Roosevelt National Park and elsewhere. The scientists are devising new high-tech approaches to detecting outbreaks of noxious weeds, such as leafy spurge.
- The USGS provided leadership and support in development of the recent

Executive Order on Invasive Species (E.O. 13112). The NBII will serve as an information hub for researchers, resource managers, and the public on invasive species issues, and will provide scientific and technical support to the newly created Invasive Species Council.

Vegetation Mapping

Both the USGS Gap Analysis Program (GAP) and the USGS–National Park Vegetation Mapping Program are important members of the NBII community.

GAP's mission is to promote biodiversity conservation by developing and sharing information on the degree to which native animal and plant species are represented in our present-day mix of conservation lands. The program offers broad geographic information on the vegetation types, vertebrate distributions, and habitat preferences to land managers, planners, and policy makers to enable them to make better-informed resource decisions.

The National Park Vegetation Mapping Program characterizes, classifies, and maps the tremendously varied vegetation of approximately 235 national park units across the country. Comprehensive vegetation information is developed to serve each park's particular management needs.

Electronic National Natural History Museum

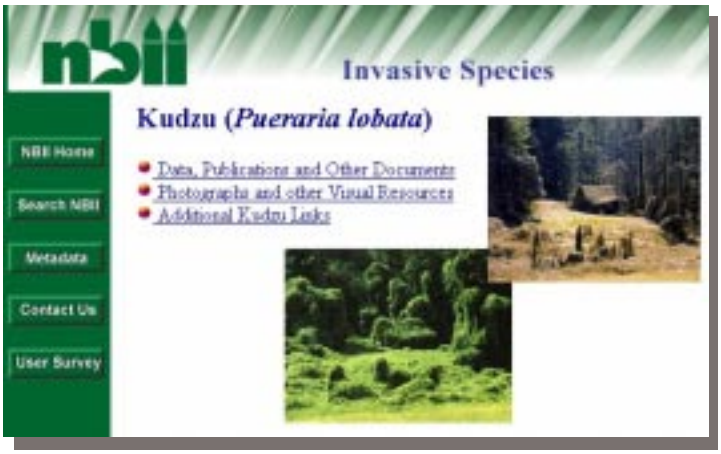
This cooperative partnership, currently in the planning stages and led by the USGS, includes several federal agencies, states, museums, and research collections across the country. The initial goal is to provide a single Web site or point of access to integrate a broad array of automated information associated with all the natural history specimens currently being curated among the nation's major museums.

Working With Others

USGS scientists -- including botanists and plant ecologists at science centers and cooperative research units -- work on an array of botanical projects with researchers from the Flora of North America project, The Nature Conservancy, the Association for Biodiversity Information, the Ecological Society of America, the Association of Systematics Collections, the American Association of Botanical Gardens and Arboreta, the Native Plants Conservation Initiative, the museum and research systematics collections community, and many others in the public and private sectors.

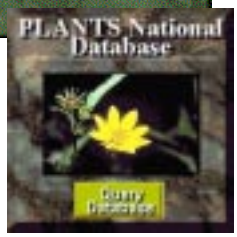
In summary, it is vital to have reliable biological information that can be included in land use and natural resource management projects. The USGS biological information budget request is aimed squarely at answering this need. Current and future generations will be affected by the way we manage our botanical treasures. That is why wise stewardship must be rooted in decisions based on the best information available.

Here are a few examples of information available through the NBII today



NBII's Web site <http://www.nbii.gov> includes links about research on invasive species <http://www.nbii.gov/invasive/Kudzu/Kudzu.html>

http://plants.usda.gov/plantproj/plants/index.html



http://www.fna.org/index1.html

The Integrated Taxonomic Information System is the first comprehensive, standardized reference of scientific names of the plants and animals of North America and surrounding oceans. In April 1998, the six Federal agencies partnering in this program were co-recipients of a Hammer Award.

For More Information

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